REMARKS

A Preliminary Amendment has been made to correct the multiple dependency of claim 3 and to place the application in better condition for examination.

It is requested that the Preliminary Amendment be entered before calculation of the filing fee and before examination by the Examiner.

Respectfully submitted,

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AMENDED CLAIM 3:

A1 3. (Amended) The method according to claim 1 [or 2], wherein the first and second adaptation layers are produced in materials and with thicknesses such as the stresses with the first and second main layers are of opposite sign, respectively.

NEW CLAIM 24

A2

24. (New) The method according to claim 2, wherein the first and second adaptation layers are produced in materials and with thicknesses such as the stresses with the first and second main layers are of opposite sign, respectively.

1. Method for producing a multilayer structure comprising at least first and second layers (110a, 110b, 210a, 210b) called main layers, connected to each other through a stocking of at least two stress adaptation layers (120, 130, 220, 230) and having a determined structure stress, wherein:

(a) the first main layer is provided with a first stress adaptation layer, and one of the second main layer and the first stress adaptation layer is provided with at least a second stress adaptation layer,

(b) an assembly of the first and second main layers is performed via stress adaptation layers, wherein the first and second adaptation layers are produced in materials and with thicknesses such that at the end of the method, said determined structure stress is obtained in the structure,

(c) after step b) a heat treatment with sufficient temperature and duration is performed for adjusting said determined structure stress in the structure.

2. The method according to claim 1, wherein said assembly of first and second main layers comprises an adherence bond.

3. The method according to claim 1, wherein the first and second adaptation layers are produced in materials and with thicknesses such as the stresses with the first and second main layers are of opposite sign, respectively.

4. The method according to claim 1, wherein at least one of the stress adaptation layers is surmounted by at least a so-called intermediate layer.

5. The method according to claim 2, wherein said assembly comprises a molecular adhesion bond between layers.

6. The method according to claim 5, wherein before step b), a preparation of the layers to be combined by molecular bonding is performed for adjusting a surface condition of these layers.

7. The method according to claim 5, wherein during step b), the molecular bonding is performed at room temperature.

8. The method according to claim 1, wherein said assembly comprises a bond implementing at least one bonding technique selected from: brazing, welding, interdiffusion between layers, and bonding with an adhesive substance.

9. The method according to claim 1, wherein said assembly occurs via an adhesion layer.

10. The method according to claim 1, wherein during step a), the first stress adaptation layer (130, 220) is formed on the first main layer (110a, 210a) and the second stress adaptation layer (120, 230) is formed on the second main layer (110b, 210b), and wherein during step b), molecular bonding is performed between the stress adaptation layers.

11. The method according to claim 1, wherein the first and second stress adaptation layers are formed on the first main layer and the bonding occurs between the second main layer and one of the first and second surface stress adaptation layers.

12. The method according to claim 1, further comprising a thinning step in at least one of the main layers after assembly.

13. The method according to claim 12, wherein the thinning step includes a separation step for fracturing along the fracture area.

14. The method according to claim 13, comprising at least an implantation of gas species in at least one of the first or second main layers or at least one of the first or second adaptation layers in order to form a fracture area (112, 212) therein, and a thinning step including a thermal and/or mechanical treatment.

15. The method according to claim 12, wherein the obtained structure stress after thinning is such that it participates in the separation at the fracture area.

16. The method according to claim 1, wherein at least one stress adaptation layer is formed by depositing material according to a deposition method selected from spry, epitaxy, chemical deposition, methods such as chemical vapor deposition, low pressure vapor deposition and plasma-aided vapor deposition.

17. The method according to claim 1, wherein at least one stress adaptation layer is obtained by surface oxidization of main layer.

18. The method according to claim 1, wherein at least one stress adaptation layer is obtained by implanting species in a main layer.

19. The method according to claim 1, wherein the main layers are produced in at least one material selected from silicon, germanium, silicon carbide, III-V type semiconductors, II-VI semiconductors, glass, supraconductors, diamond, ceramic materials ($LiNbO_3$, $LiTaO_3$), and quartz and wherein the stress adaptation layers are produced in at least one material selected from SiO_2, SiN, Si_3N_4, TiN, metals, metal alloys, and diamond or materials from one of the main layers.

20. A multilayer structure with controlled internal stresses comprising, in this order, a stack of at least a first main layer (110, 210a), of at least one first stress adaptation layer (130, 220) in contract wit the first main layer, with at least a second stress adaptation layer (120, 230) in contact with said first stress adaptation layer and a second main layer (110b, 210b) in contact with the second stress adaptation layer, the first and second stress adaptation layers having contact stresses with the first and second main layers, with the opposite sign, respectively.

21. The structure according to claim 20, characterized in that the stack further includes a bonding layer located between the stress adaptation layers or between one of the stress adaptation layers and a matching main layer.

22. The structure according to claim 20, having a suspended membrane, the suspended membrane (244) including at least a portion of one of the first and second main layers, released from the second main layer, from the first main layer, respectively.

23. The structure according to claim 22, wherein the suspended membrane (244) further comprises at least one supraconducting material layer (248) covering said portion of one of the first and second mainlayers.

24. The method according to claim 2, wherein the first and second adaptation layers are produced in materials and with thicknesses such as the stresses with the first and second main layers are of opposite sign, respectively.